Technology: Optoelectronics

PicoChip Design's new PC101 is a massively parallel device that integrates 430 16-bit processors on a single die. The PC101's resources are so abundant that, to some degree, they are expendable and the chip's internal bus fabric can even bypass a few processors ruined by manufacturing defects. Designed for cellular-telephony and wireless-network base stations, the PC101 is the first implementation of picoChip's picoArray architecture. It is based on a three-field long instruction word (LIW), but has far greater execution resources than other LIW or VLIW processors. PicoChip believes that massive parallelism is the best approach for the compute-intensive tasks of wireless communications, because it can deliver high performance at low clock speeds, saving power. In addition, dividing a complex application into many parallel tasks is well suited for large-team software development projects.

The EU SEQUEF project title is *Near-infrared sensor for internal quality evaluation of fruit and vegetables*, which will run for 2 years ending January 2005. It is expected to cost €790420 project funding is € 393000.

Prime Contractor is Aslan Import GmbH of Braunschweig, Germany. Other participants include Stuttgart based Institute For Chemistry & Biology, Unisensor Sensor Systeme GmbH, Czech based Photon System Instruments Ltd and Nov Laboratory of Applied Photo-biology & Bio-imaging, Israel's Perot Halogan Cooperative Society, Galilee Technology Centre Ltd and Spain's Foundation L'Urederra and Gumiely Y Mendia SL.

Contact email: jimena.olivars @madrid.org

CyOptics newest APD

CyOptics Inc, a main developer of Indium Phosphide optical components has launched its 10Gbps Avalanche Photodiode with a -27dBm sensitivity in an industry standard, small form factor, surface mountable package. The APD is geared for optical systems operating at 10Gb/s and provides an alternative source of supply offering high performance at lower cost. The 10Gbs APD receiver will be priced under $700 per unit in volume. Customer samples are available. Volume production is expected early 4Q.

John Pilitisis, CyOptics president and CEO said: "We are offering a highly flexible product that provides exceptional performance at a lower cost than currently available, with a small form package that lends itself to volume manufacturing."

The CyOptics 10Gb/s APD receiver consists of an InGaAs APD integrated with a high gain SiGe trans-impedance amplifier. The receiver has a built-in internal thermister for temperature monitoring that can also be used for APD bias control circuitry. The receiver package alleviates manufacturing constraints associated with fiber handling during production and meets the MSA standard.

The CyOptics ported design contains a fiber stub in the nose of the package that couples to the fiber pigtail assembly. This allows the end user the option of ordering the package with or without the pigtail assembly. The ported platform also allows for a receptacle or plug-able package design with only minor mechanical modification. The APD has been characterised at 12.5Gbs at -26dBm sensitivity measured at a BER of 10-12. The 12.5Gbs rate is a typical super FEC system rate for ultra-long haul and submarine applications

China subsidiary for Spectra-Physics

Spectra-Physics Inc is to have a major expansion of its operations in China with a new subsidiary that will provide in-country sales, service, and support from Beijing headquarters.

The new subsidiary will offer Spectra-Physics' portfolio of research and OEM lasers from high-power diodes, diode-pumped lasers and gas lasers to photon tools encompassing components and instruments, and including a line of optics, opto-mechanics and related instrumentation; optical filters, including bandpass, cut-off, and heat blocking.

The China subsidiary will also provide a variety of electro-optic crystals, scintillation crystals and synthetic crystals for infrared optics, application-specific CID imaging arrays and camera systems.

Lasers transmutes 157m years to 25 minutes

A 360J laser pulse transmutes an isotope with a half-life of 15.7m years into a lighter isotope with a half-life of just 25 minutes, according to UK and Germany physicists.

They have demonstrated a new laser-driven approach to 'transmutation' by converting iodine-129, which has a half-life of 15.7m years, into iodine-128, half-life just 25 minutes

Ken Ledingham and his colleagues from Strathclyde & Glasgow Universites, Imperial College, Rutherford Appleton Laboratory and the Institute for Transuranium Elements in Karlsruhe, Germany, illuminated a small gold target with a 360J laser pulse from the VULCAN glass laser at Rutherford. The pulse had a duration of 0.7 picoseconds, focussed to give an intensity of 5x1020W/cm2

The laser ionised the gold to form a plasma and accelerated the electrons in the plasma to relativistic energies. When the electrons strike the solid gold of the target they emit gamma-rays as bremsstrahlung radiation. Researchers then placed a sample of nuclear waste containing radioactive iodine behind the gold target. Transmutation occurs when a gamma-ray ejects a neutron from a iodine-129 nucleus to leave behind short-lived iodine-128. Each laser shot produced about 3m iodine-128 nuclei.

JDS Uniphase transceivers

JDS Uniphase today announced a new family of XFP MSA-compliant transceivers and extended its line of SFP MSA-compliant Fibre Channel and Ethernet transceivers for optical communications equipment manufacturers in the datacom market. The products are important for high speed LAN and SAN applications. "Of the various 10 Gb/s datacom designs, our customers are currently showing the greatest interest in the XFP standard, and we are the first of the major suppliers to offer an MSA-compliant product at 850 nm, which we believe is ideal for short reach, very high speed LAN and SAN applications," said Don Bossi, president of JDS